INDEX

A

A century of science: *The Biological Bulletin* looks back—and forward, 113
A cuticular secretion of the horseshoe crab, *Limulus polyphemus*: a potential anti-fouling agent, 274
A new approach for measuring real-time calcium pumping and SR function in muscle fibers, 227
Acartia tonsa, reproductive output, 294
Acetylcholine, 267
Acoustic behavior and reproduction in five species of *Corycoras* catfishes (Callichthyidae), 241
Acoustics, underwater, 241
Active factor, 174
ADAMO, SHELLEY A., see Alison J. King, 256
Aggression, 256
AKANKI, F. R., see S. J. Zottoli, 239
Alkaline gland, 82
Allelochemicals, 332
Allorejection, 188
Amazonian fish, 241
δ-aminolevulinate dehydratase, 283
An endogenous SCP-related peptide modulates ciliary beating in the gills of a venerid clam, *Mercenaria mercenaria*, 159
An ethogram of body patterning behavior in the biomedically and commercially valuable squid *Loligo pealei* off Cape Cod, Massachusetts, 49
Annelida, 14
Annual Report of the Marine Biological Laboratory, v. 197(1), R1
Annual viral expression in a sea slug population: life cycle control and symbiotic chloroplast maintenance, 1
Antennule use by the American lobster, *Homarus americanus*, during chemo-orientation in three turbulent odor plumes, 249
Anthopleura elegantissima, 72
Anti-fouling, 274
Apoptosis, 271
ARMSTRONG, PETER B., see John M. Harrington, 274; Rengasamy Asokan, 275; Chhanda Biswas, 276
Ascidian, 188
ASOKAN, RENGASAMY, AND PETER B. ARMSTRONG, Cellular mechanisms of hemolysis by the protein limulin, a sialic-acid-specific lectin from the plasma of the American horseshoe crab, *Limulus polyphemus*, 275
Astrocyte, 115
ATEMA, JELLE, see Katrin Mjos, 249; John P. Hanna, 250; Erik Zettler, 252; Cristin Berkey, 253; Leslie C. McLaughlin, 254
Avian fracture, 11

B

Bacteria, marine, 283
BALSER, ELIZABETH J., see Sönke Johnsen, 26
BARLOW, ROBERT B., see Vanessa J. Ruta, 233; Justin W. Widener, 300
Barnacle, 144
BAYNE, BRIAN L., SUSANNE SVENSSON, AND JOHN A. NELL, The physiological basis for faster growth in the Sydney rock oyster, *Saccostrea commercialis*, 377
BEARER, E. L., M. L. SCHLIEF, X. O. BREAKEFIELD, D. E. SCHUBACK, T. S. REESE, AND J. H. LAVAIL, Squid axoplasm supports the retrograde axonal transport of herpes simplex virus, 257
Behavior, 49, 225
  courtship, 63
  feeding, 207, 315, 361, 377
Behavior of hemocytes in the allorejection reaction in two compound ascidians, *Botryllus scalaris* and *Symplegma reptans*, 188
Behavioral plasticity, 63
BEN-YAKIR, R., see B. Rinkevich, 11
BEN-YAKIR, S., see B. Rinkevich, 11
BENINGER, PETER G., see Harold Silverman, 008
BERKEY, CRISTIN, AND JELLE ATEMA, Individual recognition and memory in *Homarus americanus* male-female interactions, 253
BILLACK, BLASE, JEFFREY D. LASKIN, MICHAEL A. GALLO, AND DIANE E. HECK, Effects of α-bungarotoxin on development of the sea urchin *Arbacia punctulata*, 267
Bioacoustics, 241, 242
Bioenergetics, 377
Bioluminescence, 26, 132, 348
Bioluminescence in the deep-sea cirrate octopod *Stauroteuthis syrtensis* Verrill (Mollusca: Cephalopoda), 26
Biosynthesis of tyrosine O-sulfate by cell proteoglycan from the marine sponge, *Microciona prolifera*, 279
BISWAS, CHHANDA, AND PETER B. ARMSTRONG, Identification of a hemolytic activity in the plasma of the gastropod *Busycon canaliculatum*, 276
Bivalve feeding, 368
BLACKBURN, JOHN G., see Gregory M. Grabowski, 82
Blood clam, 395
Body coloration, 49
BOLTON, TOBY F., see Florence I. M. Thomas, 7
Botryllus scalaris, 188
BOWEN, J., see A. Evgenidou, 292
BOYLE, KIM-LAURA, see Roger T. Hanlon, 49
Brain slice, 115
BREAKEFIELD, X. O., see E. L. Bearer, 257
Bringing the script to life: the role of muscle in behavior, 225
Brooding, 104
BROWN, E., see A. Evgenidou, 292
BUNGE, RICHARD P., see Geoffrey K. Ganter, 40
Buoyancy, 309
BURGER, MAX M., see Jane C. Kaltenbach, 271; William J. Kuhns, 277; Octavian Popescu, 279
BUSHMANN, PAUL J., Concurrent signals and behavioral plasticity in blue crab (*Callinectes sapidus* Rathbun) courtship, 63
BUSKEY, E. J., see D. K. Hartline, 132
BYRNE, MARIA, see Francis Chee, 123

C

Calcium, 115, 227, 229, 268
Calliactis japonica, 315
Camouflage, 348
Cancer irroratus, 361
CANDELARIO-MARTINEZ, AURORA, see Louis F. Gainey, Jr., 159
CANFIELD, SUSANNAH, LUC CLAESSENS, CHARLES HOPKINSON JR., EDWARD RASTETTER, AND JOSEPH VALLINO, Long-term effect of municipal water use on the water budget of the Ipswich River Basin, 295
Carbohydrates, 94
Carbon translocation, 72
Carcinus meanus, 297
CEBRIÁN, J., see A. Evgenidou, 292
Cell morphology, 395
Cell shape transformation, 395
Cellular mechanisms of hemolysis by the protein limulin, a sialic-acid-specific lectin from the plasma of the American horseshoe crab, *Limulus polyphemus*, 275

INDEX

A

A century of science: *The Biological Bulletin* looks back—and forward, 113
A cuticular secretion of the horseshoe crab, *Limulus polyphemus*: a potential anti-fouling agent, 274
A new approach for measuring real-time calcium pumping and SR function in muscle fibers, 227
Acartia tonsa, reproductive output, 294
Acetylcholine, 267
Acoustic behavior and reproduction in five species of *Corycoras* catfishes (Callichthyidae), 241
Acoustics, underwater, 241
Active factor, 174
ADAMO, SHELLEY A., see Alison J. King, 256
Aggression, 256
AKANKI, F. R., see S. J. Zottoli, 239
Alkaline gland, 82
Allelochemicals, 332
Allorejection, 188
Amazonian fish, 241
δ-aminolevulinate dehydratase, 283
An endogenous SCP-related peptide modulates ciliary beating in the gills of a venerid clam, *Mercenaria mercenaria*, 159
An ethogram of body patterning behavior in the biomedically and commercially valuable squid *Loligo pealei* off Cape Cod, Massachusetts, 49
Annelida, 14
Annual Report of the Marine Biological Laboratory, v. 197(1), R1
Annual viral expression in a sea slug population: life cycle control and symbiotic chloroplast maintenance, 1
Antennule use by the American lobster, *Homarus americanus*, during chemo-orientation in three turbulent odor plumes, 249
Anthopleura elegantissima, 72
Anti-fouling, 274
Apoptosis, 271
ARMSTRONG, PETER B., see John M. Harrington, 274; Rengasamy Asokan, 275; Chhanda Biswas, 276
Ascidian, 188
ASOKAN, RENGASAMY, AND PETER B. ARMSTRONG, Cellular mechanisms of hemolysis by the protein limulin, a sialic-acid-specific lectin from the plasma of the American horseshoe crab, *Limulus polyphemus*, 275
Astrocyte, 115
ATEMA, JELLE, see Katrin Mjos, 249; John P. Hanna, 250; Erik Zettler, 252; Cristin Berkey, 253; Leslie C. McLaughlin, 254
Avian fracture, 11

B

Bacteria, marine, 283
BALSER, ELIZABETH J., see Sönke Johnsen, 26
BARLOW, ROBERT B., see Vanessa J. Ruta, 233; Justin W. Widener, 300
Barnacle, 144
BAYNE, BRIAN L., SUSANNE SVENSSON, AND JOHN A. NELL, The physiological basis for faster growth in the Sydney rock oyster, *Saccostrea commercialis*, 377
BEARER, E. L., M. L. SCHLIEF, X. O. BREAKEFIELD, D. E. SCHUBACK, T. S. REESE, AND J. H. LAVAIL, Squid axoplasm supports the retrograde axonal transport of herpes simplex virus, 257
Behavior, 49, 225
  courtship, 63
  feeding, 207, 315, 361, 377
Behavior of hemocytes in the allorejection reaction in two compound ascidians, *Botryllus scalaris* and *Symplegma reptans*, 188
Behavioral plasticity, 63
BEN-YAKIR, R., see B. Rinkevich, 11
BEN-YAKIR, S., see B. Rinkevich, 11
BENINGER, PETER G., see Harold Silverman, 008
BERKEY, CRISTIN, AND JELLE ATEMA, Individual recognition and memory in *Homarus americanus* male-female interactions, 253
BILLACK, BLASE, JEFFREY D. LASKIN, MICHAEL A. GALLO, AND DIANE E. HECK, Effects of α-bungarotoxin on development of the sea urchin *Arbacia punctulata*, 267
Bioacoustics, 241, 242
Bioenergetics, 377
Bioluminescence, 26, 132, 348
Bioluminescence in the deep-sea cirrate octopod *Stauroteuthis syrtensis* Verrill (Mollusca: Cephalopoda), 26
Biosynthesis of tyrosine O-sulfate by cell proteoglycan from the marine sponge, *Microciona prolifera*, 279
BISWAS, CHHANDA, AND PETER B. ARMSTRONG, Identification of a hemolytic activity in the plasma of the gastropod *Busycon canaliculatum*, 276
Bivalve feeding, 368
BLACKBURN, JOHN G., see Gregory M. Grabowski, 82
Blood clam, 395
Body coloration, 49
BOLTON, TOBY F., see Florence I. M. Thomas, 7
Botryllus scalaris, 188
BOWEN, J., see A. Evgenidou, 292
BOYLE, KIM-LAURA, see Roger T. Hanlon, 49
Brain slice, 115
BREAKEFIELD, X. O., see E. L. Bearer, 257
Bringing the script to life: the role of muscle in behavior, 225
Brooding, 104
BROWN, E., see A. Evgenidou, 292
BUNGE, RICHARD P., see Geoffrey K. Ganter, 40
Buoyancy, 309
BURGER, MAX M., see Jane C. Kaltenbach, 271; William J. Kuhns, 277; Octavian Popescu, 279
BUSHMANN, PAUL J., Concurrent signals and behavioral plasticity in blue crab (*Callinectes sapidus* Rathbun) courtship, 63
BUSKEY, E. J., see D. K. Hartline, 132
BYRNE, MARIA, see Francis Chee, 123

C

Calcium, 115, 227, 229, 268
Calliactis japonica, 315
Camouflage, 348
Cancer irroratus, 361
CANDELARIO-MARTINEZ, AURORA, see Louis F. Gainey, Jr., 159
CANFIELD, SUSANNAH, LUC CLAESSENS, CHARLES HOPKINSON JR., EDWARD RASTETTER, AND JOSEPH VALLINO, Long-term effect of municipal water use on the water budget of the Ipswich River Basin, 295
Carbohydrates, 94
Carbon translocation, 72
Carcinus meanus, 297
CEBRIÁN, J., see A. Evgenidou, 292
Cell morphology, 395
Cell shape transformation, 395
Cellular mechanisms of hemolysis by the protein limulin, a sialic-acid-specific lectin from the plasma of the American horseshoe crab, *Limulus polyphemus*, 275

Central nervous system, 240
Centrifuge microscopy, 260
Cephalopod, 26, 256
CHAGA, OLEG, see Steven Q. Irvine, 319
CHAPPARO, O. R., R. J. THOMPSON, AND C. J. EMERSON, The velar ciliature in the brooded larva of the Chilean oyster *Ostrea chilensis* (Philippi, 1845), 104
CHEE, FRANCIS, AND MARIA BYRNE, Development of the larval serotonergic nervous system in the sea star *Patiriella regularis* as revealed by confocal imaging, 123
Chemical cues, 94
Chemo-orientation turbulence, 249, 250
Chemoreceptor cells as concentration slope detectors: preliminary evidence from the lobster nose, 252
Chemoreceptor filter properties, 252
Chemoreception, 361
Chemotaxis, 250
CHILD, ALICE, see Aimee Vasse, 281
Cilia
  bands, 14
  beating, 159
  in feeding, 14
  velar, 104
Circadian rhythms, 233
Cirri, 008
CLAESSENS, LUC, see Katherine M. Pease, 289; Susannah Canfield, 295
Clam, 159
CLAY, JOHN R., AND ALAN M. KUZIRIAN, Fluorescence localization of K+ channels in the membrane of squid giant axons, 231
COHEN, WILLIAM D., see Christine Lema-Foley, 395
Colony specificity, 188
Columba livia, 11
Communication, 49
Concentration slope detectors, 252
Concepts in Imaging and Microscopy: Exploring biological structure and function with confocal microscopy, 115
Concurrent signals and behavioral plasticity in blue crab (*Callinectes sapidus* Rathbun) courtship, 63
Confocal microscopy, 115, 262, 263
Contact with squid eggs increases agonistic behavior in male squid (*Loligo pealei*), 256
Copepod, 132
Coral reef, 303
Coral reef fish, 242
Coralline algae, 332
CORCORAN, A., see A. Evgenidou, 292
CORCORAN, D., see A. Evgenidou, 292
Countershading, 348
Courtship, 63
Courtship sounds of the Pacific damselfish, *Abudefduf sordidus* (Pomacentridae), 242
Crab, 63, 174, 361
CRAIN, JENNIFER A., Functional morphology of prey ingestion by *Placetron wosnessenskii* Schalfeew zoeae (Crustacea: Anomura: Lithodidae), 207
Cropping of sea anemone tentacles by a symbiotic barnacle, 315
Crustacea, 144, 348, 361
CUBBAGE, ANDREA, DAVID LAWRENCE, GABRIELLE TOMASKY, AND IVAN VALIELA, Relationship of reproductive output in *Acartia tonsa*, chlorophyll concentration, and land-derived nitrogen loads in estuaries of Waquoit Bay, Massachusetts, 294
Cyclodextrin, 284
Cyprid, 144
Cytochrome P450, 303

D

D'AMBROSIO, A., see A. Evgenidou, 292
DAILEY, MICHAEL, GLEN MARRS, JAKOB SATZ, AND MARC WAITE, Concepts in Imaging and Microscopy: Exploring biological structure and function with confocal microscopy, 115
Damselfish, 242, 244
DEARHOLT, C., see A. Evgenidou, 292
Decline of a horseshoe crab population on Cape Cod, 300
DEEGAN, LINDA, see Talia Young, 297; Sharon Komarow, 299
Deep sea, 26, 348
Defense mechanism, 281
DEGNAN, BERNARD M., AND CRAIG R. JOHNSON, Inhibition of settlement and metamorphosis of the ascidian *Herdmania curvata* by non-geniculate coralline algae, 332
DEMING, NICOLE M., see Robert B. Silver, 268
Density, 309
DEPINA, ANA S., see Torsten Wöllert, 265
DESAI, ARSHAD, see Paul Maddox, 263
Development, 123, 267, 319, 341
Development of the larval serotonergic nervous system in the sea star *Patiriella regularis* as revealed by confocal imaging, 123
Diatom, 292
Dictyostelium, 260
DIETZ, THOMAS H., see Harold Silverman, 368
Dinoflagellate, 292
Dioxin, 303
Disease, 237
Displays, 49
DNA-PK in development, 341
DOBLE, KAREN E., see Louis F. Gainey, Jr., 159
DODGE, FREDERICK A., see Vanessa J. Ruta, 233
Dorsal cell, 239
Dynamic confocal imaging of interphase and mitotic microtubules in the fission yeast, *S. pombe*, 262
Dynamic confocal imaging of mitochondria in swimming *Tetrahymena* and of microtubule poleward flux in *Xenopus* extract spindles, 263
Dynein, 259

E

Echinoid, life history, 7
Echiuridae, 14
EDDS-WALTON, P. L., see R. R. Fay, 240
EDWARDS, KRISTIN A., see Florence I. M. Thomas, 7
Effects of α-bungarotoxin on development of the sea urchin *Arbacia punctulata*, 267
Effects of green tea polyphenols on lens photooxidative stress, 285
Effects of increased nitrogen loading on the abundance of diatoms and dinoflagellates in estuarine phytoplanktonic communities, 292
Effects of vanadate on actin-dependent vesicle motility in extracts of clam oocytes, 265
Elasmobranch, 82
Electrophysiology, 82
Electroretinogram, 348
Ellipsosomes, 235
Elysia, 1
EMERSON, C. J., see Benjamin G. Miner, 14; O. R. Chaparro, 104; Dovi Kelman, 309
EMPSON, RUTH M., see Jyotshna Kanungo, 341
Endosymbiosis, 1
ENGEBRETSON, HILARY P., AND GISÈLE MULLER-PARKER, Translocation of photosynthetic carbon from two algal symbionts to the sea anemone *Anthopleura elegantissima*, 72
Enhancement of the response of rock crabs, *Cancer irroratus*, to prey odors following feeding experience, 361
Epidermal growth factor, 198
Erythrocyte, 395
Escape behavior kinematics, 132
Ethogram, 49
Eutrophication, 290
Evaluation of a reporter gene system biomarker for detecting contamination in tropical marine sediments, 303
Evaluation of circadian rhythms in the *Limulus* eye, 233
EVGENIDOU, A., A. KONKLE, A. D'AMBROSIO, A. CORCORAN, J. BOWEN, E. BROWN, D. CORCORAN, C. DEARHOLT, S. FERN, A. LAMB, J. MICHALOWSKY, I. RUEGG, AND J. CEBRIAN, Effects of increased nitrogen

loading on the abundance of diatoms and dinoflagellates in estuarine phytoplanktonic communities, 292
Evolution, 26, 198, 319
Extracellular survival of an intracellular parasite (*Spraguea lophii*, Microsporea), 270

F

FAY, R. R., AND P. L. EDDS-WALTON, Sharpening of directional auditory input in the descending octaval nucleus of the toadfish, *Opsanus tau*, 240
Feeding, 207
  barnacle, 315
  bivalve, 368
FEINSTEIN, DOUGLAS L., see Robert Gould, 259
FERN, S., see A. Evgenidou, 292
Fertilization, 7
FINDLEY, ANN, see Earl Weidner, 270
Fish
  Amazonian, 241
  Coral reef, 242
FISHER, ERIN C., see Sönke Johnsen, 26
Fluorescence localization of K+ channels in the membrane of squid giant axons, 231
Fluorescence speckle microscopy, 263
Foraging, 361
FRANK, T. M., see S. M. Lindsay, 348
FREUND, CONCETTA, see Robert Gould, 259
FUKUI, YOSHIO, TARO Q. P. UYEDA, CHIKAKO KITAYAMA, AND SHINYA INOUÉ, Migration forces in *Dictyostelium* measured by centrifuge DIC microscopy, 260
Functional and evolutionary implications of opposed bands, big mouths, and extensive oral ciliation in larval opheliids and echiurids (Annelida), 14
Functional morphology, 207
Functional morphology of prey ingestion by *Placetron wosnessenskii* Schalfeew zoeae (Crustacea: Anomura: Lithodidae), 207

G

G proteins, 388
GAINEY, LOUIS F., JR., KELLY J. VINING, KAREN E. DOBLE, JENNIFER M. WALDO, AURORA CANDELARIO-MARTINEZ, AND MICHAEL J. GREENBERG, An endogenous SCP-related peptide modulates ciliary beating in the gills of a venerid clam, *Mercenaria mercenaria*, 159
β-galactosidase, 40
GALLO, MICHAEL A., see Blase Billack, 267
Gamete properties, 7
GAMULIN, VERA, see Alexander Skorokhod, 198
GANTER, GEOFFREY K., RALF HEINRICH, RICHARD P. BUNGE, AND EDWARD A. KRAVITZ, Long-term culture of lobster central ganglia: expression of foreign genes in identified neurons, 40
GARRITT, ROBERT, see Talia Young, 297; Sharon Komarow, 299
GFP-tubulin, 262
Glial cells,
Glutathione S-transferase, 268
GOULD, ROBERT, CONCETTA FREUND, FRANK PALMER, PAMELA E. KNAPP, JEFF HUANG, HILARY MORRISON, AND DOUGLAS L. FEINSTEIN: Messenger mRNAs for kinesins and a dynein are located in neural processes, 259
GRABOWSKI, GREGORY M., JOHN G. BLACKBURN, AND ERIC R. LACY, Morphology and epithelial ion transport of the alkaline gland in the Atlantic stingray (*Dasyatis sabina*), 82
GRASSO, FRANK, see Katrin Mjos, 249; John P. Hanna, 250
Green crab, 297
Green tea polyphenols, 285
Green-fluorescent protein, 40
GREENBERG, MICHAEL J., A century of science: *The Biological Bulletin* looks back—and forward, 113
GREENBERG, MICHAEL J., see Louis F. Gainey, Jr., 159
Growth, 377
GUNDACKER, DIETMAR, see Alexander Skorokhod, 198

H

HANLEY, JANICE S., NADAV SHASHAR, ROXANNA SMOLOWITZ, WILLIAM MEBANE, AND ROGER T. HANLON, Soft-sided tanks improve long-term health of cultured cuttlefish, 237
HANLON, ROGER T., MICHAEL R. MAXWELL, NADAV SHASHAR, ELLIS R. LOEW, AND KIM-LAURA BOYLE, An ethogram of body patterning behavior in the biomedically and commercially valuable squid *Loligo pealei* off Cape Cod, Massachusetts, 49
HANLON, ROGER T., see Janice S. Hanley, 237; Kathleen Q. Tang, 247; Alison J. King, 256
HANNA, JOHN P., FRANK W. GRASSO, AND JELLE ATEMA, Temporal correlation between sensor pairs in different plume positions: a study of concentration information available to the American lobster, *Homarus americanus*, during chemotaxis, 250
HANTEN, JEFFREY J., see Sidney K. Pierce, 1
HÁROSI, FERENC I., see Iñigo Novales Flamarique, 235
HARRINGTON, JOHN M., AND PETER B. ARMSTRONG, A cuticular secretion of the horseshoe crab, *Limulus polyphemus*: a potential anti-fouling agent, 274
HARRISON, PAUL J. H., AND DAVID C. SANDEMAN, Morphology of the nervous system of the barnacle cypris larva (*Balanus amphitrite* Darwin) revealed by light and electron microscopy, 144
HARTLINE, D. K., E. J. BUSKEY, AND P. H. LENZ, Rapid jumps and bioluminescence elicited by controlled hydrodynamic stimuli in a mesopelagic copepod, *Pleuromamma xiphias*, 132
Hatching, crab, 174
Hearing, 240
HECK, DIANE E., see Blase Billack, 267
HEINRICH, RALF, see Geoffrey K. Ganter, 40
Hemocyanin, 276
Hemocytes, 188
Hemolysis, 275, 276
Herpes virus, 257
Hippocampus, 115
HIROSE, EUICHI, see Maki Shirae, 188
HIZA, N. A., see S. J. Zottoli, 239
HO-SANG, D. A. JR., see S. J. Zottoli, 239
Homarus americanus, 249, 252, 253, 254
HOPKINSON, CHARLES JR., see Katherine M. Pease, 289; Susannah Canfield, 295
HOSKIN, FRANCIS C. G., DIANE M. STEEVES, AND JOHN E. WALKER, Substituted cyclodextrin as a model for a squid enzyme that hydrolyzes the nerve gas soman, 284
5-HT neurogenesis, 123
HUANG, JEFF, see Robert Gould, 259
Hyaluronic acid, 277
Hyaluronic acid: a component of the aggregation factor secreted by the marine sponge, *Microciona prolifera*, 277
Hyaluronic acid binding protein, 277
Hydrostatic pressure, 388
Hydrostatic pressure alters the time course of GTP[S] binding to G proteins in brain membranes from two congeneric marine fishes, 388

I

Identification of a hemolytic activity in the plasma of the gastropod *Busycon canaliculatum*, 276
Identified neurons, 40
Immunity, 274
Immunocytochemistry, 231
Increased lability of estuarine dissolved organic nitrogen from urbanized watersheds, 290
Individual recognition, 253, 254
Individual recognition and memory in *Homarus americanus* male-female interactions, 253

Influence of marsh flooding on the abundance and growth of *Fundulus heteroclitus* in salt marsh creeks, 299
Ingestion, 207
INGOGLIA, MARK J., see Lisa M. Kerr, 303
Inhibition of settlement and metamorphosis of the ascidian *Herdmania curvata* by non-geniculate coralline algae, 332
INOUÉ, SHINYA, see Yoshio Fukui, 260; P. T. Tran, 262; Paul Maddox, 263
Insulin receptor-like tyrosine kinase, 198
Intense concanavalin A staining and apoptosis of peripheral flagellated cells in larvae of the marine sponge *Microciona prolifera*: significance in relation to morphogenesis, 271
INTERIOR, REY, see Octavian Popescu, 279
Internal fixation, 11
Invertebrate
  reproduction, 7
  larvae, 207
Ion channels, 231
Ipswich River, 289, 295
Ipswich River nutrient dynamics: preliminary assessment of a simple nitrogen-processing model, 289
IRVINE, STEVEN Q., OLEG CHAGA, AND MARK Q. MARTINDALE, Larval ontogenetic stages of *Chaetopterus*: developmental heterochrony in the evolution of chaetopterid polychaetes, 319
IWASAKI, HIROSHI, see Masayuki Saigusa, 174

J

JOHNSEN, SÖNKE, ELIZABETH J. BALSER, ERIN C. FISHER, AND EDITH A. WIDDER, Bioluminescence in the deep-sea cirrate octopod *Stauroteuthis syrtensis* Verrill (Mollusca: Cephalopoda), 26
JOHNSON, CRAIG R., see Bernard M. Degnan, 332
Johnston atoll, 242

K

KAATZ, INGRID M., AND PHILLIP S. LOBEL, Acoustic behavior and reproduction in five species of *Corycoras* catfishes (Callichthyidae), 241
KALTENBACH, JANE C., WILLIAM J. KUHNS, TRACY L. SIMPSON, AND MAX M. BURGER, Intense concanavalin A staining and apoptosis of peripheral flagellated cells in larvae of the marine sponge *Microciona prolifera*: significance in relation to morphogenesis, 271
KANUNGO, JYOTSHNA, RUTH M. EMPSON, AND HOWARD RASMUSSEN, Microinjection of an antibody to the Ku protein arrests development in sea urchin embryos, 341
KAPOOR, TARUN, see Paul Maddox, 263
KAVSAN, VADIM, see Alexander Skorokhod, 198
KELMAN, DOVI, AND RICHARD B. EMLET, Swimming and buoyancy in ontogenetic stages of the cushion star *Pteraster tesselatus* (Echinodermata: Asteroidea) and their implications for distribution and movement, 309
KENT, J., see S. M. Lindsay, 348
KERR, LISA M., PHILLIP S. LOBEL, AND J. MARK INGOGLIA, Evaluation of a reporter gene system biomarker for detecting contamination in tropical marine sediments, 303
KERR, LISA M., see Phillip S. Lobel, 242
KILHAM, N., see Katherine M. Pease, 289
Kinesin, 259
KING, ALISON J., SHELLEY A. ADAMO, AND ROGER T. HANLON, Contact with squid eggs increases agonistic behavior in male squid (*Loligo pealei*), 256
KITAYAMA, CHIKAKO, see Yoshio Fukui, 260
KLIMOV, ANDREI A., see Lawrence C. Rome, 227
KNAPP, PAMELA E., see Robert Gould, 259
Koleolepas avis, 315
KOMAROW, SHARON, TALIA YOUNG, LINDA DEEGAN, AND ROBERT GARRITT, Influence of marsh flooding on the abundance and growth of *Fundulus heteroclitus* in salt marsh creeks, 299
KOMAROW, SHARON, see Talia Young, 297
KONKLE, A., see A. Evgenidou, 292
KOROLEVA, ZOYA, see Christine Lema-Foley, 395
KRAVITZ, EDWARD A., see Geoffrey K. Ganter, 40
KROEGER, KEVIN D., see Felisa L. Wolfe, 290
KRUG, PATRICK J., AND ADRIANA E. MANZI, Waterborne and surface-associated carbohydrates as settlement cues for larvae of the specialist marine herbivore *Alderia modesta*, 94
Ku antigen, 341
KUHNS, WILLIAM J., MAX M. BURGER, AND EVA TURLEY, Hyaluronic acid: a component of the aggregation factor secreted by the marine sponge, *Microciona prolifera*, 277
KUHNS, WILLIAM J., see Jane C. Kaltenbach, 271; Octavian Popescu, 279
KUZIRIAN, ALAN M., see John R. Clay, 231

L

Lability, 290
LACY, ERIC R., see Gregory M. Grabowski, 82
LAMB, A., see A. Evgenidou, 292
LANGFORD, GEORGE M., see Torsten Wöllert, 265
Larva, 104, 123, 207, 309
  cypris, 144
  feeding, 14
  nonfeeding, 309
  settlement, 94
Larval ecology, 207
Larval ontogenetic stages of *Chaetopterus*: developmental heterochrony in the evolution of chaetopterid polychaetes, 319
LASKIN, JEFFREY D., see Blase Billack, 267
Lateral inhibition, 233
LATZ , M. I., see S. M. Lindsay, 348
LAVAIL, J. H., see E. L. Bearer, 257
LAWRENCE, DAVID, see Andrea Cubbage, 294
Lead (Pb), 283
Lectin staining, 271
LEE, KYENG G., see Christine Lema-Foley, 395
LEMA-FOLEY, CHRISTINE, KYENG G. LEE, TCHAIKO PARRIS, ZOYA KOROLEVA, NISHAL MOHAN, PIERRE NOAILLES, AND WILLIAM D. COHEN, Reversible alteration of morphology in an invertebrate erythrocyte: properties of the natural inducer and the cellular response, 395
Lens, 285
LENZ, P. H., see D. K. Hartline, 132
Leukotriene B4, 268
Leukotriene B4 as calcium agonist for nuclear envelope breakdown: an enzymological survey of endomembranes of mitotic cells, 268
LEWIS, NATHANIEL, see Seymour Zigman, 285
Life cycle, 1
Life history, 7
Limulin, 275
Limulus, 233, 274, 275, 300
LINDSAY, S. M., T. M. FRANK, J. KENT, J. C. PARTRIDGE, AND M. I. LATZ, Spectral sensitivity of vision and bioluminescence in the midwater shrimp *Sergestes similis*, 348
LOBEL, PHILLIP S., AND LISA M. KERR, Courtship sounds of the Pacific damselfish, *Abudefduf sordidus* (Pomacentridae), 242
LOBEL, PHILLIP S., see Ingrid M. Kaatz, 241; Lisa M. Kerr, 303
Lobster, 40, 249, 252, 253, 254
  chemo-orientation, 249
LOEW, ELLIS R., see Roger T. Hanlon, 49
Loligo pealei, 49
Long-term culture of lobster central ganglia: expression of foreign genes in identified neurons, 40
Long-term effect of municipal water use on the water budget of the Ipswich River Basin, 295
LYNN, JOHN W., see Harold Silverman, 008

M

MADDOX, PAUL, ARSHAD DESAI, E. D. SALMON, T. J. MITCHISON, KAREN OOGEMA, TARUN KAPOOR, BRIAN MATSUMOTO, AND SHINYA INOUÉ, Dynamic confocal imaging of mitochondria in swimming *Tetrahymena* and of microtubule poleward flux in *Xenopus* extract spindles, 263

MADDOX, P., see P. T. Tran, 262
MALCHOW, ROBERT PAUL, AND DAVID J. RAMSEY, Responses of retinal Müller cells to neurotransmitter candidates: a comparative study, 229
MANZI, ADRIANA E., see Patrick J. Krug, 94
Marginal band, 395
Mariculture, 237
MARRS, GLEN, see Michael Dailey, 115
Marsh flooding, 299
MARTINDALE, MARK Q., see Steven Q. Irvine, 319
Mating
  behavior, 300
  systems, 256
MATSUMOTO, BRIAN, see Paul Maddox, 263
MAUGEL, TIMOTHY K., see Sidney K. Pierce, 1
MAXWELL, MICHAEL R., see Roger T. Hanlon, 49
McLAUGHLIN, LESLIE C., JENNIFER WALTERS, JELLE ATEMA, AND NORMAN WAINWRIGHT, Urinary protein concentration in connection with agonistic interactions in *Homarus americanus*, 254
MEBANE, WILLIAM, see Janice S. Hanley, 237
Mechanical resistance to shear stress: the role of echinoderm egg extracellular layers, 7
Mechanosensory thresholds, 132
Memory, 253
MENSINGER, ALLEN F., see Nichole N. Price, 246, Kathleen Q. Tang, 247
Mercenaria mercenaria, 159
Messenger mRNAs for kinesins and a dynein are located in neural processes, 259
Metabolic efficiency, 377
Metamorphosis, 94
MICHALOWSKY, J., see A. Evgenidou, 292
Microciona prolifera, 277, 279
Microglia, 115
Microinjection of an antibody to the Ku protein arrests development in sea urchin embryos, 341
Microspectrophotometry, 348
Microsporidian, 270
Microtubule, 262, 263
Migration forces, 260
MINER, BENJAMIN G., ERIC SANFORD, RICHARD R. STRATHMANN, BRUNO PERNET, AND RICHARD B. EMLET, Functional and evolutionary implications of opposed bands, big mouths, and extensive oral ciliation in larval opheliids and echiurids (Annelida), 14
MISEVIC, GRADIMIR, see Octavian Popescu, 279
MITCHISON, T. J., see Paul Maddox, 263
MJOS, KATRIN, FRANK GRASSO, AND JELLE ATEMA, Antennule use by the American lobster, *Homarus americanus*, during chemo-orientation in three turbulent odor plumes, 249
MOHAN, NISHAL, see Christine Lema-Foley, 395
Mollusc, 276
MONDRUP, THOMAS, Salinity effects on nutrient dynamics in estuarine sediments investigated by a plug-flux method, 287
MONDY, WILLIAM L., see Sidney K. Pierce, 1
Morphology, 82, 144, 319
Morphology and epithelial ion transport of the alkaline gland in the Atlantic stingray (*Dasyatis sabina*), 82
Morphology of the nervous system of the barnacle cypris larva (*Balanus amphitrite* Darwin) revealed by light and electron microscopy, 144
MORRISON, HILARY, see Robert Gould, 259
Morula cell, 188
MOTTA, M., see S. J. Zottoli, 239
MÜLLER, ISABEL M., see Alexander Skorokhod, 198
MÜLLER, WERNER E. G., see Alexander Skorokhod, 198
MULLER-PARKER, GISÉLE, see Hilary P. Engebretson, 72
Mummichog, 299
MURRAY, THOMAS F., see Joseph F. Siebenaller, 388
Muscle, 225, 227
Mussel, 008
Myosin-dependent vesicle transport, 265
Mytilus edulis, 008

N

Natural population, 300
Necrosis, 332
NELL, JOHN A., see Brian L. Bayne, 377
Nerve gas, 284
Nervous system, 144
Neurogenesis, 123
Neuron, 115
  identifiable, 239
  supramedullary, 239
Neuropeptides, 159
Nitrogen
  cycling, 287, 289
  dissolved organic, 290
  land-derived, 294
  model, 289
NOAILLES, PIERRE, see Christine Lema-Foley, 395
Noetia ponderosa, 395
NOVALES FLAMARIQUE, IÑIGO, AND FERENC I. HÁROSI, Photoreceptor pigments of the blueback herring (*Alosa aestevalis*, Clupeidae) and the Atlantic silverside (*Menidia menidia*, Atherinidae), 235
Nuclear envelope breakdown, 268
Nutrient loading, 292

O

O'NEILL, MAUREEN D., see Kathleen Q. Tang, 247
Octopus, 26
Odor, 361
OGUNSEITAN, O. A., S. L. YANG, AND E. SCHEINBACH, The δ-aminolevulinate dehydratase of marine *Vibrio alginolyticus* is resistant to lead (Pb), 283
Oligodendrocyte, 259
OLIVER, STEVEN J., AND ELISE WATSON, Threat-sensitive nest defense in domino damselfish (*Dascyllus albisella*), 244
OOGEMA, KAREN, see Paul Maddox, 263
Opheliidae, 14
Opisthobranch, 94
Organ culture, 40
Origin of insulin receptor-like tyrosine kinases in marine sponges, 198
Ostrea chilensis, 104
Ovigerous-hair stripping substance (OHSS) in an estuarine crab: purification, preliminary characterization, and appearance of the activity in the developing embryos, 174
Oyster, 104, 377

P

PALMER, FRANK, see Robert Gould, 259
Parasitism, 315
PARRIS, TCHAIKO, see Christine Lema-Foley, 395
Particle capture, 368
PARTRIDGE, J. C., see S. M. Lindsay, 348
Patiriella regularis, 123
PAUL, ROBERT, see Robert Paul Malchow, 229
PEASE, KATHERINE M., L. CLAESSENS, C. HOPKINSON, E. RASTETTER, J. VALLINO, AND N. KILHAM, Ipswich River nutrient dynamics: preliminary assessment of a simple nitrogen-processing model, 289
Pentose phosphate pathway, 268
PERNET, BRUNO, see Benjamin G. Miner, 14
Phospholipase A2, 268
Photo-oxidation, 285
Photoreceptor pigments of the blueback herring (*Alosa aestevalis*, Clupeidae) and the Atlantic silverside (*Menidia menidia*, Atherinidae), 235
Physiological characterization of supramedullary/dorsal neurons of the cunner, *Tautogolabrus adspersus*, 239
Physiology, 377
Phytoplankton biomass, 294
PIERCE, SIDNEY K., TIMOTHY K. MAUGEL, MARY E. RUMPHO, JEFFREY J. HANTEN, AND WILLIAM L. MONDY, Annual viral expression in a sea

slug population: life cycle control and symbiotic chloroplast maintenance, 1
Polarization, 49
Polychaete, 14, 319
Polyclonal antibody, 174
Pomacentrid, 244
POPESCU, OCTAVIAN, REY INTERIOR, GRADIMIR MISEVIC, MAX M. BURGER, AND WILLIAM J. KUHNS, Biosynthesis of tyrosine O-sulfate by cell proteoglycan from the marine sponge, *Microciona prolifera*, 279
Population size and summer home range of the green crab, *Carcinus maenus*, in salt marsh tidal creeks, 297
Predation, 246, 361
Predator-prey interactions of juvenile toadfish, *Opsanus tau*, 246
PRICE, NICHOLE N., AND ALLEN F. MENSINGER, Predator-prey interactions of juvenile toadfish, *Opsanus tau*, 246
PRICE, NICHOLE N., see Kathleen Q. Tang, 247
Prophenoloxidase, 281
Prophenoloxidase is not activated by microbial signals in *Limulus polyphemus*, 281
Protein tyrosine phosphatase, in clam oocyte extracts, 265
Purification, 174

R

RAFFERTY, KEEN A., see Seymour Zigman, 285
RAFFERTY, NANCY S., see Seymour Zigman, 285
RAMSEY, DAVID J., see Robert Paul Malchow, 229
Rapid jumps and bioluminescence elicited by controlled hydrodynamic stimuli in a mesopelagic copepod, *Pleuromamma xiphias*, 132
RASMUSSEN, HOWARD, see Jyotshna Kanungo, 341
RASTETTER, EDWARD, see Katherine M. Pease, 289; Susannah Canfield, 295
Real-time confocal system, 263
REBACH, STEVE, see Andrew Ristvey, 361
REESE, T. S., see E. L. Bearer, 257
Regeneration of amputated avian bone by a coral skeletal implant, 11
Relationship of reproductive output in *Acartia tonsa*, chlorophyll concentration, and land-derived nitrogen loads in estuaries of Waquoit Bay, Massachusetts, 294
Reproduction, 82
Response latency, 233
Responses of retinal Müller cells to neurotransmitter candidates: a comparative study, 229
Retina, 229
Retrograde axonal transport, 257
Retrovirus, 1
Reversible alteration of morphology in an invertebrate erythrocyte: properties of the natural inducer and the cellular response, 395
RINKEVICH, B., S. BEN-YAKIR, AND R. BEN-YAKIR, Regeneration of amputated avian bone by a coral skeletal implant, 11
RISTVEY, ANDREW, AND STEVE REBACH, Enhancement of the response of rock crabs, *Cancer irroratus*, to prey odors following feeding experience, 361
RNA-injection, 40
Rock crab, 361
ROME, LAWRENCE C., ANDREI A. KLIMOV, AND IAIN S. YOUNG, A new approach for measuring real-time calcium pumping and SR function in muscle fibers, 227
ROME, LAWRENCE C., Bringing the script to life: the role of muscle in behavior, 225
RUEGG, I., see A. Evgenidou, 292
RUMPHO, MARY E., see Sidney K. Pierce, 1
RUTA, VANESSA J., FREDERICK A. DODGE, AND ROBERT B. BARLOW, Evaluation of circadian rhythms in the *Limulus* eye, 233

S

SAIGUSA, MASAYUKI, AND HIROSHI IWASAKI, Ovigerous-hair stripping substance (OHSS) in an estuarine crab: purification, preliminary characterization, and appearance of the activity in the developing embryos, 174
SAITO, YASUNORI, see Maki Shirae, 188
Salinity, 287
Salinity effects on nutrient dynamics in estuarine sediments investigated by a plug-flux method, 287
SALMON, E. D., see Paul Maddox, 263
Salt marsh, 297, 299
SANDEMAN, DAVID C., see Paul J. H. Harrison, 144
SANFORD, ERIC, see Benjamin G. Miner, 14
Sarcoplasmic reticulum, 227
SATZ, JAKOB, see Michael Dailey, 115
SCHEINBACH, E., see O. A. Ogunseitan, 283
SCHLIEF, M. L., see E. L. Bearer, 257
SCHUBACK, D. E., see E. L. Bearer, 257
Sea anemone, 72
Sea slug, 1
Sea star, 123, 309
Search image, 361
Sebastolobus
  alascanus, 388
  altivelis, 388
Sediment, 287
Sepia, 237
Sergestes, 348
Settlement, ascidian, 332
SEWELL, MARY A., see Florence I. M. Thomas, 7
SEYFARTH, E.-A., see S. J. Zottoli, 239
Sharpening of directional auditory input in the descending octaval nucleus of the toadfish, *Opsanus tau*, 240
SHASHAR, NADAV, see Roger T. Hanlon, 49; Janice S. Hanley, 237
SHIRAE, MAKI, EUICHI HIROSE, AND YASUNORI SAITO, Behavior of hemocytes in the allorejection reaction in two compound ascidians, *Botryllus scalaris* and *Symplegma reptans*, 188
Shrimp, 348
SIEBENALLER, JOSEPH F., AND THOMAS F. MURRAY, Hydrostatic pressure alters the time course of GTP[S] binding to G proteins in brain membranes from two congeneric marine fishes, 388
Signaling, 49, 63
SILVER, ROBERT B., AND NICOLE M. DEMING, Leukotriene B4 as calcium agonist for nuclear envelope breakdown: an enzymological survey of endomembranes of mitotic cells, 268
SILVERMAN, HAROLD, JOHN W. LYNN, PETER G. BENINGER, AND THOMAS H. DIETZ, The role of latero-frontal cirri in particle capture by the gills of *Mytilus edulis*, 368
SIMPSON, TRACY L., see Jane C. Kaltenbach, 271
Skeleton, 11
SKOROKHOD, ALEXANDER, VERA GAMULIN, DIETMAR GUNDACKER, VADIM KAVSAN, ISABEL M. MÜLLER, AND WERNER E. G. MÜLLER, Origin of insulin receptor-like tyrosine kinases in marine sponges, 198
SMOLOWITZ, ROXANNA, see Janice S. Hanley, 237
Soft-sided tanks improve long-term health of cultured cuttlefish, 237
Soman, 284
Sound source localization, 240
Spawning, 7
Spectral sensitivity of vision and bioluminescence in the midwater shrimp *Sergestes similis*, 348
Sperm, 82
Sponge, 198, 271, 277, 279
Sporoplasm, 270
Squid, 49, 256
  axons, 231, 257
Squid axoplasm supports the retrograde axonal transport of herpes simplex virus, 257
STEEVES, DIANE M., see Francis C. G. Hoskin, 284
Stingray, 82
STRATHMANN, RICHARD R., see Benjamin G. Miner, 14
Stylophora pistillata, 11
Substituted cyclodextrin as a model for a squid enzyme that hydrolyzes the nerve gas soman, 284
Summer home range, 297
Supramedullary neurons, 239
SVENSSON, SUSANNE, see Brian L. Bayne, 377
Swimbladder, 225

Swimming, 309
Swimming and buoyancy in ontogenetic stages of the cushion star *Pteraster tesselatus* (Echinodermata: Asteroidea) and their implications for distribution and movement, 309
Symbiosis, 1, 72, 315
Symplegma reptans, 188

T

TAN, X., see S. J. Zottoli, 239
TANG, KATHLEEN Q., NICHOLE N. PRICE, MAUREEN D. O'NEILL, ALLEN F. MENSINGER, AND ROGER T. HANLON, Temperature effects on first-year growth of cultured oyster toadfish, *Opsanus tau*, 247
Teleost, 246
Temperature effects on first-year growth of cultured oyster toadfish, *Opsanus tau*, 247
Temporal correlation between sensor pairs in different plume positions: a study of concentration information available to the American lobster, *Homarus americanus*, during chemotaxis, 250
Territoriality, interspecific, 244
The δ-aminolevulinate dehydratase of marine *Vibrio alginolyticus* is resistant to lead (Pb), 283
The physiological basis for faster growth in the Sydney rock oyster, *Saccostrea commercialis*, 377
The role of latero-frontal cirri in particle capture by the gills of *Mytilus edulis*, 368
The velar ciliature in the brooded larva of the Chilean oyster *Ostrea chilensis* (Philippi, 1845), 104
THOMAS, FLORENCE I. M., KRISTIN A. EDWARDS, TOBY F. BOLTON, MARY A. SEWELL, AND JILL M. ZANDE, Mechanical resistance to shear stress: the role of echinoderm egg extracellular layers, 7
THOMPSON, R. J., see O. R. Chaparro, 104
Threat-sensitive nest defense in domino damselfish (*Dascyllus albisella*), 244
Time-lapse, 115
Toadfish, 225, 227, 240, 246, 247
TOMASKY, GABRIELLE, see Andrea Cubbage, 294
TRAN, P. T., P. MADDOX, AND S. INOUÉ, Dynamic confocal imaging of interphase and mitotic microtubules in the fission yeast, *S. pombe*, 262
Translocation of photosynthetic carbon from two algal symbionts to the sea anemone *Anthopleura elegantissima*, 72
Trochophore, 14
TURLEY, EVA, see William J. Kuhns, 277
Tyrosine O-sulfate, 279
Tyrosine sulfation substrates, 279

U

Ultrastructure, 144
Urchin, 267
Urinary protein, 254
Urinary protein concentration in connection with agonistic interactions in *Homarus americanus*, 254
UYEDA, TARO Q. P., see Yoshio Fukui, 260

V

VALIELA, IVAN, see Felisa L. Wolfe, 290; Andrea Cubbage, 294
VALLINO, JOSEPH, see Katherine M. Pease, 289; Susannah Canfield, 295
Vanadate, 265
VASSE, AIMEE, ALICE CHILD, AND NORMAN WAINWRIGHT, Prophenoloxidase is not activated by microbial signals in *Limulus polyphemus*, 281
Veliger, 104
Velum, 104
VINING, KELLY J., see Louis F. Gainey, Jr., 159
Vision, 235
Visual pigment, 235, 348

W

WAINWRIGHT, NORMAN, see Leslie C. McLaughlin, 254; Aimee Vasse, 281
WAITE, MARC, see Michael Dailey, 115
WALDO, JENNIFER M., see Louis F. Gainey, Jr., 159
WALKER, JOHN E., see Francis C. G. Hoskin, 284
WALTERS, JENNIFER, see Leslie C. McLaughlin, 254
Water budget, 295
Waterborne and surface-associated carbohydrates as settlement cues for larvae of the specialist marine herbivore *Alderia modesta*, 94
WATSON, ELISE, see Steven J. Oliver, 244
WATTS, K. M., see S. J. Zottoli, 239
WEIDNER, EARL, AND ANN FINDLEY, The extracellular survival of an intracellular parasite (*Spraguea lophii*, Microsporea), 270
WIDDER, EDITH A., see Sönke Johnsen, 26
WIDENER, JUSTIN W., AND ROBERT B. BARLOW, Decline of a horseshoe crab population on Cape Cod, 300
WOLFE, FELISA L., KEVIN D. KROEGER, AND IVAN VALIELA, Increased lability of estuarine dissolved organic nitrogen from urbanized watersheds, 290
WÖLLERT, TORSTEN, ANA S. DEPINA, AND GEORGE M. LANGFORD, The effects of vanadate on actin-dependent vesicle motility in extracts of clam oocytes, 265

Y

YAMATO, SHIGEYUKI, see Yoichi Yusa, 315
YANG, S. L., see O. A. Ogunseitan, 283
YOUNG, IAIN S., see Lawrence C. Rome, 227
YOUNG, TALIA, Sharon Komarow, Linda Deegan, and Robert Garritt, Population size and summer home range of the green crab, *Carcinus maenus*, in salt marsh tidal creeks, 297
YOUNG, TALIA, see Sharon Komarow, 299
YUSA, YOICHI, AND SHIGEYUKI YAMATO, Cropping of sea anemone tentacles by a symbiotic barnacle, 315

Z

ZANDE, JILL M., see Florence I. M. Thomas, 7
ZETTLER, ERIK, AND JELLE ATEMA, Chemoreceptor cells as concentration slope detectors: preliminary evidence from the lobster nose, 252
ZIGMAN, SEYMOUR, NANCY S. RAFFERTY, KEEN A. RAFFERTY, AND NATHANIEL LEWIS, Effects of green tea polyphenols on lens photooxidative stress, 285
Zoochlorellae, 72
Zooxanthellae, 72
ZOTTOLI, S. J., F. R. AKANKI, N. A. HIZA, D. A. HO-SANG, JR., M. MOTTA, X. TAN, K. M. WATTS, AND E.-A. SEYFARTH, Physiological characterization of supramedullary/dorsal neurons of the cunner, *Tautogolabrus adspersus*, 239